IBM Information FrameWork (IFW)

商業資料模型之建置與導入

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Agenda:
The Next 45 Minutes

- Why Business Intelligence?

1. Data Modeling: IFW
2. Infrastructure: DWE

- Why IBM?
Business Intelligence: Defined

Business Intelligence is the discipline that combines services, applications, and technologies to gather, manage and analyze data, transforming it into usable information to develop the insight and understanding needed to make informed decisions.
Businesses Need to Become More Nimble

- Responsive in customer time
- Offer the right product, at the right time
- Make offers at price points customers will find compelling
- Find new ways of doing business
- Retain profitable customers, release unprofitable

*Accelerating the Speed of Business*
Anatomy of Business Intelligence Solution

Data
- Transaction history
- Point-of-sale
- Demographic
- Lifestyle
- Financial
- Economic
- Government
- Surveys
- Industry averages

Analysis
- Patterns
- Trends
- Facts
- Relations
- Models
- Associations
- Sequences

Decisions
- Where to advertise
- Catalog mailing list
- Store layout
- Cross product marketing
- Credit and Policy risk
- Funds allocation
- Target markets
- Promotion Effectiveness
- Customer Retention
Business Intelligence: Adding Insight to Information

...CRM...Financial Management...Work Force Analysis...Procurement Analysis...

Diverse Information | Real-time Analysis | Expanding User Communities
Business Intelligence: Adding Insight to Information

Evolution

Understanding Customers, Improving Operations
- Customer Relationship Mgmt.
- Financial Management
- Work Force Analysis
- Procurement Analysis
- Regulatory Compliance
- +++

Extended Infrastructures
Solutions Orientation
Expanding Audiences

Extended Warehouses
Solution Enablement

Portals & Collaboration

Warehouses & Data Marts

Desktop Tools

Reporting

Increasing Value and Scope of Impact
BI Return on Investment

"Users are beginning the process of making technology decisions, which will evolve into enterprise-wide BI platforms. The notion is pretty simple. Users have seen fantastic returns (i.e., 100,000% or more) from building, buying, and deploying BI solutions, including analytical applications."

Credit Union of Texas: Monitoring Performance

| Application                  | "Member" Profitability data mart  
|                             | Next-sell Cross-sell analysis  
|                             | CEO FlightDeck Simulations |
| Business Benefits           | 34% Growth in 2001, $2.6M ROI vs. $1.5M expense  
|                             | Marketing campaigns response improves from 1% to 8%  
|                             | A single campaign: $150K profit  
|                             | 10.4% response rate  
|                             | Targeted & expanded from 250K to 2.5M households |
| Solution                    | DB2 UDB, Intelligent Miner for Data, Unica, Business Objects, IGS EZMart  

Data Modeling –

Information FrameWork ( IFW )

DB2 Information Management Software
### IBM Industry BI Models – BY Name

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<th>Telco</th>
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*ERwin Data Models, Star Scheme Data Models, OLAP outlines, (Rational RDA)*
What are these BI Data Models

- Business Content and Definitions
- Business Reporting and Analysis focused solutions
- Data Warehouse Models – architected to be scalable and performance
- Open and Platform independent - but with advantages on DB2
- Designed to address business issues
# TDW Business Solution Templates

## Sales and Marketing
- Campaign Analysis
- Cross Sell Analysis
- Customer Acquisition Analysis
- Data Package Sales Analysis
- Number Portability Analysis
- Retail Transaction Analysis
- Sales Channel Analysis

## Churn Management
- Contract Renewal Analysis
- Customer Churn Analysis
- NLD/IDD Defection Analysis

## Operations and Finance
- Customer Billing Analysis
- Financial Management Analysis
- Income Analysis

## Product Lifecycle Management
- Product Profitability Analysis
- Postpaid Revenue Analysis
- Prepaid Revenue Analysis

## CRM & Segmentation
- Commercial Customer Financial Analysis
- Customer Arrangement Analysis
- Customer Lifetime Value Analysis
- Customer Profitability Analysis
- Individual Customer Financial Analysis
- Customer Complaints Analysis
- Wallet Share Analysis

## Usage Profiling
- Content Usage Analysis
- E-Commerce Analysis
- Inbound Roamer Usage Analysis
- Outbound Roaming Analysis
- Pre-rated CDR Analysis
- SMS/MMS Usage Analysis
- Wireless Data Usage Analysis
- Wireless Voice Usage Analysis
- Wireline Data Usage Analysis
- Wireline Voice Usage Analysis

## Service Quality Management
- CSR Performance Analysis
- Service Order Processing Analysis

## Credit Risk Management
- Credit and Collections Analysis
- Customer Delinquency Analysis
- Individual Credit Risk Profile
Banking Data Warehouse (BDW)

IFW Foundation Models
- Financial Services Data Model
- Financial Services Function Model
- Financial Services Workflow Model

IFW Integration Models
- Financial Services Business Object Model
- Financial Services Interface Design Model

IFW Process Models
- Generators

Banking Data Warehouse
- Business Solution Templates
- Banking Data Warehouse Model

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The Data Integration Challenge for Financial Institutions

Infrastructure to address multiple Requirements

Sources
- Core Banking Apps
- Front Office & Trading Apps
- Accounting Systems
- CIF
- Market Data
- Other Sources

Enterprise Data Consolidation

The Business Drivers

Basel II
- Basel II adherence will be mandatory for many banks, depending on attitude of local regulator
- Potentially improved credit ratings and associated reduction in cost of capital

International Accounting Standards
- All listed companies in the EU will have to meet the standards by 2005.
- 66% of CFOs think IAS needed to reform capital markets.

Corporate Governance
- Mandatory adherence by all organizations with reporting responsibilities to the SEC.
- Formal criminal CEO and CFO accountability regarding misinformation in all significant reports and filings to SEC and other bodies

Customer Insight
- Renewed focus by financial institutions to maximizing the cross sell capabilities to existing customers
- Ongoing need to expand customer base, especially in emerging markets

Need for a single consistent enterprise view of data
Need for a single architecture to address all compliance and customer insight issues over time
Need to consolidate data from multiple heterogeneous sources
Need for flexibility to address future as-yet unknown reporting requirements
The Data Integration Answer for Financial Institutions

Solution to address Multiple Compliance and non-compliance requirements

The Business Drivers

- **Basel II**
  - Any necessary enhancements included to reflect Basel II Revised Framework of 29th June 2004
  - BDW has support for Credit Risk and Operational Risk data requirements (including IRB Advanced and AMA).
  - Has data structures in place to also address Market Risk requirements

- **International Accounting Standards**
  - BDW Customers have already used BDW as foundation for their financial reporting
  - Provides explicit support for requirements of IAS Taxonomy

- **Corporate Governance**
  - BDW has the underlying data structures and reporting structures to support the corporate responsibility and financial disclosure requirements
  - BDW provides the data foundation needed for the long-term analysis of AML-transactions.

- **Customer Insight**
  - BDW has extensive structures to support all aspects of Customer Insight (Communications, Campaigns, Segmentation, etc)
  - Has the full set of data attributes to feed downstream applications in areas such as Customer Cross Sell and Customer Lifetime Value Analysis

**Sources**

- Core Banking Apps
- Front Office & Trading Apps
- Market Data
- Other Sources

**An Enterprise Data Model Designed to be Built Incrementally**

- BDW provides the blueprint for a single consistent enterprise view of data
- BDW provides a proven solution with the scaleable and flexibility needed to address existing and future data consolidation requirements.
- Ongoing pre-defined content to assist in addressing compliance and other issues
Banking Data Warehouse Overview

**Business Solution Templates** - Set of Data Mart Templates which cover all generic reporting requirements needed by a Financial Services Data Warehouse

**BDW Model** - Complete and Proven EDW Design to address the enterprise wide storage needs of a Financial Institution

**BDW Project Views** - Set of views across the Data Mart and Data Warehouse structures which outline the DW and Data Mart coverage of specific business issues such as Basel II Reports and Anti-Money Laundering Reporting.

**Generation of EDW Structures** - The ability to rapidly generate the EDW as well as the MDOLAP and ROLAP Data structures. OLAP Metadata can be generated via a DB2 Cube Views interface.
KPIs and reporting summary levels that are embedded within the BSTs are defined and commonly used by financial institutions around the world.

Data structure designs created from the BSTs for star schema and DB2 OLAP Server databases.
BDW Application Solution Templates for Basel II

One AST for each Basel II credit risk component

Each AST contains a full breakdown of the data requirements of each credit risk component as defined in the Basel II Revised Framework

Each data item is fully defined

Each data item is the mapped back to the equivalent BDW Model entities or attributes

Enables rapid scoping for specific credit risk engine requirements
Infrastructure –

Data Warehouse Edition (DWE)

DB2 Information Management Software
Build BI function into the database, as part of an integrated BI platform, exposed solely through open, standard interfaces, and collaborating with partners for other layers of the BI architecture.
Simplified Administration & Maintenance

Industry Specific Models

Data consolidation

Analysis

Modeling

ETL

Federation, ETL

Data Marts

Warehouse

ODS / Staging

Simplified Administration & Maintenance

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SQL Administration and Control

- **Query governing**: before execution by DB2 engine
- **Reporting**: detail and summary information on past queries
- **Monitoring**: enables DBAs to view and take action on queries that have been recently submitted
- **Performance** improvements: query throughput, database hot/cold spots
Advanced analytical function
Data Mining in DB2

- Easy modeling
- Embedded in your application
- High performance & easy integration

SQL interface

**Examples**
- Customer Relationship Marketing
- Fraud Detection
- Market Basket Analysis
Improve performance: OLAP Acceleration, Meta-data centralizing, unifying & sharing

Users can still have their favorite tools, and IT can ensure consistency!

Performance is improved in the warehouse through better summary tables useable by all tools!

...and many others
Improve performance (1): Summary data table generation
Improve performance (2): Multi-Dimensional Clustering

- Multi-dimensional Clustering
  - Provides range partitioning on multiple dimensions
  - Reduces need for indexing
  - Roll-in / roll-out improvements

Prior to MDC
- Clustering in one dimension only
- Clustering NOT guaranteed
  (degrades once page free space is exhausted)

With MDC
- Clustering guaranteed!
- Smaller indexes
- Faster query response
- Simple definition syntax
- Fast roll-in & roll-out

CREATE TABLE MDC1 (  
  Date DATE,  
  Province CHAR(2),  
  Color VARCHAR(10),  
  YearMonth generated as INTEGER(Date)/100,  
  ...  
)  
DIMENSIONS ( YearAndMonth, Province, Colour )

All records in this block are from the West region and from the year 2000
DB2 Data Warehouse Edition

Extract Transform Load

Data sources

- VSAM files
- DB2
- SAP
- IMS
- ORACLE
- Informix
- Sybase
- Web
- Linux

Process Modeling  Data Extraction  Data Loading
Data Transformation  Data Cleansing  Metadata
Data Movement  Job Scheduling

ODS

Data Warehouse

OLAP Cubes

Data Marts
Scalability

- AIX, Solaris, HP-UX
- Windows 2000/XP
- Linux, Linux/390
- zOS, OS/400
- PalmOS, Win CE, EPOC-32
- 32-64 bit servers

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DB2 Information Management BI Overview
Enterprise-wide Access

SQL, Content, or Search APIs

DB2 Information Integrator

SQL, SQL/XML
Federation Engine
Wrappers and functions

DB2 II Classic Federation

VeniceBridge

Others
Open Text
Documentum
Stellent
FileNet
DB2 Content Manager

Text
XML
Excel
WebSphere MQ
WWW, email,…

DB2 UDB
VSAM
IMS
Software AG
Adabas
CA-Datacom
CA-IDMS

DB2 Family
Sybase
Informix
SQL Server
Teradata
ODBC

IBM Extended Search

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Positioning: Customers Vote for IBM BI

1. IBM Corporation
2. Oracle Corporation
3. Microsoft Corporation
4. Hewlett-Packard Company
5. Business Objects
6. SAS
7. Dell
8. Sun Microsystems, Inc.
9. Computer Associates
10. Cognos, Inc.
11. Teradata, a division of NCR
12. EMC Corporation
13. MicroStrategy
14. Informatica Corporation
15. Sync Sort Incorporated
Thank you!